Instructions for Paper Airplanes

- 1. Grab an 8.5"x11" blank piece of paper, or one with fold lines already on them.
- 2. Color your soon-to-be plane! Have fun with it!
- 3. Build your airplane!
 - If you have a paper with fold lines, fold along the lines as directed.
 - If you do not have the paper with fold lines, try folding it into a plane yourself, or ask the instructor and/or friends to help you build one!
 - Look at the designs that are already made for ideas!
- 4. Let your plane fly! Throw it, and see how far you can get it to go!
- 5. For an added challenge, place a paper clip on the plane somewhere, and see how far you can get it to fly with extra weight!
- 6. (Optional) A competition can go throughout the day on the whiteboard, as depicted below. Change the records as they are broken. A magnet can be placed beside a kid's name when they win that category.

Kid's	Farthest	Farthest	Coolest	Most
Name	thrown	thrown	airplane	colorful
	(without	(with	design	plane
	weight)	weight)		
Bill		0		Ο

Mark on the ground with tape where the planes land to keep an accurate account of who threw the farthest plane(s).

The Physics

When a plane flies through the air, it encounters air resistance as it tries to move forward. A more aerodynamic (thin) plane will fly farther, since the surface area will be available for drag resistance. A bulky plane will not fly as far because more surface area exists for the air to touch and slow down the plane. With added weight, the plane falls faster because of the additional weight that the plane needs to counter-act. Without the weight, the plane glides along farther due to it being lighter. Thus, the Earth's gravity does not pull on it as much. With the weight, the plane falls faster with a higher gravitational force in addition to the force of air resistance.